

# MODEL BUILDING

## Configuring the Learning Process

<b>Date</b>	17 November 2022
<b>Team ID</b>	PNT2022TMID33064
<b>Project Name</b>	Emerging Methods for Early Detection of Forest Fires.

### ##Importing The ImageDataGenerator Library

```
import keras  
from keras.preprocessing.image import ImageDataGenerator
```

### ###Define the parameters/arguments for ImageDataGenerator class

```
train_datagen=ImageDataGenerator(rescale=1./255, shear_range=0.2, rotation_range=180, zoom_range=0.2, horizontal_flip=True)
```

```
test_datagen=ImageDataGenerator(rescale=1./255)
```

### ###Applying ImageDataGenerator Functionality to trainset

```
x_train=train_datagen.flow_from_directory(r'C:\archive\Dataset\Dataset\train_set',  
target_size=(128,128), batch_size=32, class_mode='binary')
```

### ###Applying ImageDataGenerator Functionality to testset

```
x_test=test_datagen.flow_from_directory(r'C:\archive\Dataset\Dataset\test_set', target_size=(128,128), batch_size=32, class_mode='binary')
```

**##Import model building libraries**

**#To Define linear initialization import Sequential**

from keras.models import Sequential

**#To add layers import Dense**

from keras.layers import Dense

**#To create Convolution kernel import Convolution 2D**

from keras.layers import Convolution2D

**#import maxpooling layers**

from keras.layers import MaxPooling2D

**#import flatten Layer**

from keras.layers import Flatten

import warnings

warnings.filterwarnings('ignore')

**#Initializing the Model**

model=Sequential()

**##adding CNN layers**

model.add(Convolution2D(32,(3,3),input\_shape=(128,128,3),activation='relu'))

**##adding maxpooling layer**

model.add(MaxPooling2D(pool\_size=(2,2)))

**##adding flatten Layer**

model.add(Flatten())

### **##add hidden layer**

```
model.add(Dense(150,activation='relu'))
```

### **##add output layer**

```
model.add(Dense(1,activation='sigmoid'))
```

### **#Configure the Learning Process**

```
model.compile(loss="binary_crossentropy",optimizer="adam",metrics=['accuracy'])
```